CLAIMS

What is claimed is:

- 1. An oscillator circuit for use in a local oscillator of an RF communications device that communicates over an RF channel, said oscillator circuit comprising an oscillator transistor coupled to a power supply voltage (Vcc) through a buffer transistor and a biasing network having bias voltage outputs coupled to a control input of said oscillator transistor and to a control input of said buffer transistor, said bias voltage network being coupled to Vcc, and further comprising circuitry for setting a magnitude of Vcc as a function of at least one of RF channel conditions or an operational mode of the RF communications device.
- An oscillator circuit as in claim 1, wherein said RF channel conditions are determined by calculating a signal-to-noise ratio (SNR).
- An oscillator circuit as in claim 1, wherein the magnitude of Vcc is set between about zero volts and some maximum value.
- An oscillator circuit as in claim 1, wherein said operational mode is one of a TDMA mode or a CDMA mode.
- 5. An oscillator circuit as in claim 1, wherein said operational mode is one of a burst transmission and reception mode or a substantially continuous transmission and reception mode.
- 6. An oscillator circuit as in claim 1, wherein said operational mode is one of a narrow bandwidth mode or a wider bandwidth mode.
- 7. An oscillator circuit as in claim 1, wherein the value of Vcc is set so as to minimize power consumption as a function of an amount of allowable local oscillator phase noise, and where Vcc is coupled to said oscillator transistor directly or via a buffer transistor.
- 8. An oscillator circuit for use in a local oscillator of an RF communications device that communicates over an RF channel, said oscillator circuit comprising an oscillator

transistor coupled to a power supply voltage (Vcc) through a buffer transistor and a bias voltage network having bias voltage outputs coupled to a control input of said oscillator transistor and to a control input of said buffer transistor, said bias voltage network being coupled to another power supply voltage Vbias, and further comprising circuitry for setting a magnitude of both Vcc and Vbias as a function of at least one of RF channel conditions or an operational mode of the RF communications device.

- An oscillator circuit as in claim 8, wherein said RF channel conditions are determined by calculating a signal-to-noise ratio (SNR).
- 10. An oscillator circuit as in claim 8, wherein the magnitude of Vcc and Vbias is set between about zero volts and some maximum value.
- 11. An oscillator circuit as in claim 8, wherein said operational mode is one of a TDMA mode or a CDMA mode.
- 12. An oscillator circuit as in claim 8, wherein said operational mode is one of a burst transmission and reception mode or a substantially continuous transmission and reception mode.
- 13. An oscillator circuit as in claim 8, wherein said operational mode is one of a narrow bandwidth mode or a wider bandwidth mode.
- 14. An oscillator circuit as in claim 8, wherein the values of Vcc and Vbias are set so as to minimize power consumption as a function of an amount of allowable local oscillator phase noise.
- 15. A broad bandwidth/narrow bandwidth dual mode RF transceiver, comprising:

at least one phase locked loop (PLL) that includes a voltage controlled oscillator (VCO) providing a local oscillator signal for at least one of an I/Q modulator or an I/Q demodulator;

a processor responsive to an output of said I/Q demodulator for determining at

least one aspect of RF channel quality; and

circuitry coupled between said processor and said VCO for minimizing at least VCO power consumption as a function of an amount of allowable VCO phase noise for a current RF channel quality.

- 16. A dual mode RF transceiver as in claim 15, wherein at least said VCO can be turned off between bursts when operating in said narrow bandwidth mode.
- 17. A dual mode RF transceiver as in claim 15, wherein a magnitude of one or both of a VCO supply voltage Vcc and a VCO biasing supply voltage Vbias are variable by said circuitry for varying the power consumption of said VCO.
- 18. A dual mode RF transceiver as in claim 17, wherein the magnitude of Vcc and Vbias is variable between about zero volts and some maximum value.
- 19. A dual mode RF transceiver as in claim 15, wherein said RF channel quality is determined by calculating a signal-to-noise ratio (SNR).
- 20. A method for operating a broad bandwidth/narrow bandwidth dual mode RF transceiver, comprising:

operating at least one phase locked loop (PLL) that includes a voltage controlled oscillator (VCO) to provide a local oscillator signal for at least one of an I/Q modulator or an I/O demodulator;

responsive to an output of said I/Q demodulator, determining at least one aspect of RF channel quality; and

minimizing at least the power consumption of said VCO as a function of an amount of allowable VCO phase noise for a current RF channel quality.

21. A method as in claim 20, and further comprising turning off at least said VCO between bursts when operating in said narrow bandwidth mode.